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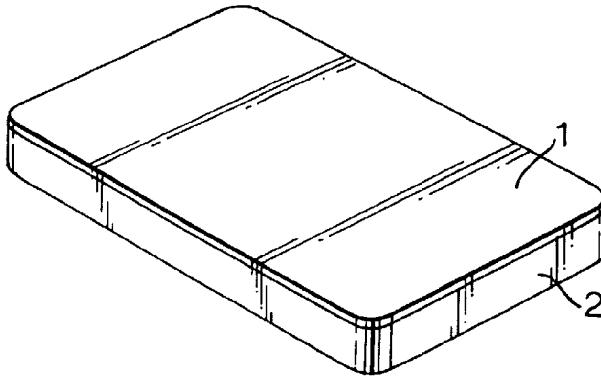
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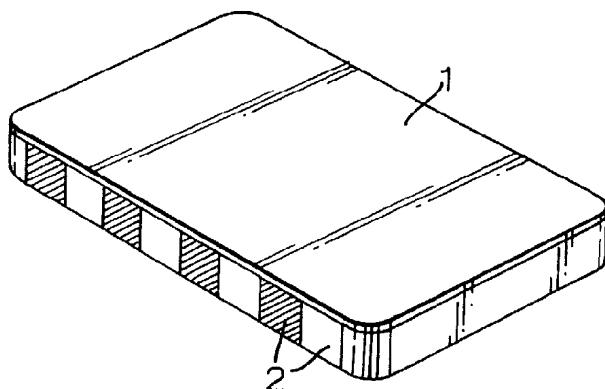
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(54) Title: A METHOD FOR THE TREATMENT OF TEXTILE SURFACES AND PRODUCTS FOR USE THEREIN



(57) Abstract: The present invention relates to a method for the treatment of a textile and to products for use therein, wherein the products comprise a polymer retaining a textile treatment agent, optionally having a liquid impervious backing attached to the polymer, and, optionally, a liquid impervious external wrapping encasing substantially all of the patch, preferably encasing the entire patch.



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A METHOD FOR THE TREATMENT OF TEXTILE SURFACES
AND PRODUCTS FOR USE THEREIN

The present invention relates to a method for the
5 treatment of a textile and to products for use therein,
wherein the products comprise a polymer retaining a
textile treatment agent, optionally having a liquid
impervious backing attached to the polymer, and,
optionally, a liquid impervious external wrapping
10 encasing substantially all of the patch, preferably
encasing the entire patch.

It is well known to treat textiles such as carpets,
mats, upholstery, fabrics and wall-coverings in various
15 ways, for example to impart a fragrance thereto, to
condition them such as by the use of antistatic agents or
to cleanse them such as by the use of powder or liquid
detergent compositions.

20 Typically, some water and a machine is used to
complete the washing task. However, for the treatment of
spot stains it is not necessary to clean the whole
textile, cleaning just the area of the textile stained
would be more convenient. It would also be convenient to
25 deal with such a stain immediately.

Therefore, we have devised a convenient stain
removing patch which, in its preferred embodiment,
comprises a polymer applied to a backing which polymer
30 retains a textile treatment agent which is released after
the patch is applied to the textile. In use the patch is
applied to the textile and release of a textile treatment

agent occurs through surface action at the interface between the polymer and textile (such as by wicking, capillary action or diffusion). Alternatively release of the textile treatment agent can be by applying a force to 5 the patch. Depending on the polymer used the agent and/or the stain may be absorbed, after pressure is released, back into the polymer. In one embodiment the patch is then removed, preferably by peeling.

10 In an alternative embodiment the patch is left remaining on the textile and is removed by a washing process, such as in a textile washing machine. Preferably the patch is made from a water-soluble or dispersible polymer which dissolves or disperses into a 15 wash liquor.

A feature of the invention is a patch comprising a polymer retaining a textile treatment agent; optionally, a liquid impervious backing attached to the polymer; and, 20 optionally, a liquid impervious external wrapping enclosing substantially all of the patch, preferably enclosing the entire patch.

Accordingly, the present invention also provides a 25 method for the treatment of a textile which comprises the step of applying to the textile a patch as defined herein.

Additional, and optional, method steps include the 30 following;

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- i) applying force to the patch to deform the polymer and release the textile treatment agent;
- 5 ii) removing the force from the patch to allow the polymer to absorb the agent and/or stain;
- iii) immersing the textile into a wash liquid into which the patch will dissolve or disperse;
- iv) removing the patch from the textile.

10 The textile treatment agent may act in at least one or more of the following ways:- cleansing the textile surface, in which case a suitable cleansing fluid is used; insect-proofing, in which case an insecticidal fluid is used; fragrancing, in which case a perfumed 15 fluid is used; a biocidal or biostatic treatment in which case an antibiotic fluid is used; residual treatment, for example with an antistatic fluid or any of the above fluids so as to achieve a residual or protracted effect.

20 Preferably the textile treatment agent is within a fluid, (either dissolved or suspended) in the form of a composition which may include one or more of the following; a bleach (with or without a bleach activator), an enzyme system (including any necessary stabilisers) 25 and at least one surfactant.

Bleach

30 Peroxygen bleaching agents are preferred. Suitable peroxygen bleaching compounds include sodium carbonate peroxyhydrate and equivalent "percarbonate" bleaches, sodium pyrophosphate peroxyhydrate, urea peroxyhydrate,

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and sodium peroxide. Persulfate bleach (e.g., OXONE, manufactured commercially by DuPont) can also be used.

Peroxygen bleaching agents, the perborates, the 5 percarbonates, etc., are preferably combined with bleach activators, which lead to the in situ production in aqueous solution (i.e., during the washing process) of the peroxy acid corresponding to the bleach activator. Various nonlimiting examples of activators are disclosed 10 in US Patent 4,915,854, issued April 10, 1990 to Mao et al., and US Patent 4,412,934. The nonanoyloxybenzene sulfonate (NOBS) and tetraacetyl ethylene diamine (TAED) activators are typical and are preferred, and mixtures thereof can also be used. See also US 4,634,551 for other 15 typical bleaches and activators useful herein.

Ideally from 0.1 to 20% by weight of the composition is a bleach, with or without a bleach activator.

20 Enzymes

Enzymes can be included in the formulations herein for a wide variety of fabric laundering purposes, including removal of protein-based, carbohydrate-based, 25 or triglyceride-based stains, for example, and for the prevention of dye transfer, and for fabric restoration. The enzymes to be incorporated include proteases, amylases, lipases, cellulases, and peroxides, as well as mixtures thereof. Other types of enzymes may also be 30 included. They may be of any suitable origin, such as vegetable, animal, bacterial, fungal and yeast origin. However, their choice is governed by several factors such

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as pH-activity and/or stability optima, thermostability, stability versus active detergents, builders and so on. In this respect bacterial or fungal enzymes are preferred, such as bacterial amylases and proteases, and 5 fungal cellulases.

Enzymes are normally incorporated at levels sufficient to provide up to about 5 mg by weight, more typically about 0.01 mg to about 3 mg of active enzyme 10 per gram of the composition. Stated otherwise, the compositions herein will typically comprise from about 0.001 % to about 5 %, preferably 0.01 %-1 % by weight of a commercial enzyme preparation. Protease enzymes are usually present in such commercial preparations at levels 15 sufficient to provide from 0.005 to 0.1 Anson units (AU) of activity per gram of composition.

Surfactant

20 Non-limiting examples of surfactants useful herein typically at levels from about 1 % to about 55 %, by weight, of the treatment fluid and comprise an anionic such as sulphonates, sulphates and ether sulphates or/and a nonionic such as a ethoxy or propoxylated alkyl, fatty acid or alcohol. These include the conventional C11-C18 25 alkyl benzene sulfonates ("LAS") and primary, branched-chain and random C10-C20 alkyl sulfates ("AS"), the C10-C18 secondary (2,3) alkyl sulfates of the formula CH₃(CH₂)_x(CHOSO₃-M⁺)CH₃ and CH₃(CH₂)_y(CHOSO₃-M⁺)CH₂CH₃ 30 where x and (y + 1) are integers of at least about 7, preferably at least about 9, and M is a water-solubilising cation, especially sodium, unsaturated

sulfates such as oleyl sulfate, the C10-C18 alkyl alkoxy sulfates ("AExS"; especially EO 1-7 ethoxy sulfates). C10-C18 alkyl alkoxy carboxylates (especially the EO₁₋₅ ethoxycarboxylates), the C10-18 glycerol ethers, the C10-5 C18 alkylpolyglycosides and their corresponding sulfated polyglycosides, and C12-C18 alpha-sulfonated fatty acid esters. If desired, the conventional nonionic and amphoteric surfactants such as the C12-C18 alkyl ethoxylates ("AE") including the so-called narrow peaked 10 alkyl ethoxylates and C6-C12 alkyl phenol alkoxylates (especially ethoxylates and mixed ethoxy/propoxy), C12-C18 betaines and sulfobetaines ("sultaines"), C10-C18 amine oxides, and the like, can also be included in the overall compositions. The C10-C18 N-alkyl polyhydroxy 15 fatty acid amides can also be used. Typical examples include the C12-C18 N-methylglucamides. See WO 92/06154. Other sugar-derived surfactants include the N-alkoxy polyhydroxy fatty acid amides, such as C10-C18 N-(3-methoxypropyl) glucamide. The N-propyl through N-hexyl 20 C12-C18 glucamides can be used for low sudsing. C10-C20 conventional soaps may also be used. If high sudsing is desired, the branched-chain C10-C16 soaps may be used. Mixtures of anionic and nonionic surfactants are especially useful. Other conventional useful anionic, 25 amphoteric, nonionic or cationic surfactants are listed in standard texts.

It will be appreciated that certain textile treatment agents need not be reabsorbed into the patch, 30 such as an insecticidal fluid.

In carrying out the method of the invention force may be applied manually to the patch, for example by rubbing.

5 When force is applied the treatment agent exudes from the polymer. When force ceases to be applied to the polymer containing the textile treatment agent the polymer, depending on the polymer selected, may absorb at least a part, preferably a substantial part (greater than 10 50%) of the textile treatment agent or, if preferred, an insubstantial (less than 50%) or no part of the textile treatment fluid. A consequence of absorption is the possibility that any soil may be taken up into the polymer. A further advantage is that a reduced amount of 15 fluid is left on the textile, which can then dry relatively rapidly. Alternatively the treatment fluid is allowed to remain in the textile material as discussed above.

20 The present invention also includes within its scope textile treatment compositions which comprise 5 to 99.5% by weight of water, optionally up to 40% by weight of an organic solvent, and at least one ingredient selected from:

25 0.1 to 10% by weight of a perfume,
 0.001 to 1% by weight of an enzyme,
 0.01 to 5% by weight of an insecticide,
 0.01 to 5% by weight of an antistatic agent,
30 0.01 to 5% by weight of an antimicrobial agent,
 0.01 % - 1 % by weight of a commercial enzyme preparation,

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0.1 to 20% by weight of a bleach, with or without a bleach activator.

and

0.01 to 55% by weight of a surfactant.

5

The preferred compositions of the present invention contain from 35 to 90% by weight of water. For use as fragrancing compositions the preferred compositions contain from 0.1 to 2.0% by weight of a perfume; for use 10 as insecticidal compositions the preferred compositions contain from 0.5 to 1.5% by weight of an insecticide; for use as antistatic treatment compositions the preferred compositions contain from 0.3 to 1.0% by weight of an antistatic agent; for use as antimicrobial compositions 15 the preferred compositions contain from 0.3 to 1.0% by weight of an antimicrobial agent; whilst the use as cleansing compositions the compositions contain from 0.2 to 2.0% by weight of a surfactant.

20 Preferably the polymer is a hydrogel. By the term "hydrogel" as used herein it is meant a natural or synthetic polymeric material which possesses the ability to swell in water. The hydrogel may be water-insoluble or water-soluble. Generally, synthetic hydrogels are 25 formed by polymerizing a hydrophilic monomer in an aqueous solution under conditions where the polymer becomes cross-linked so as to form a three dimensional polymer network. Natural hydrogels are also included, such as alginates and polysaccharides, such as xanthan 30 and locust bean gum.

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Preferably, the hydrogel is a hydrophilic homopolymer or copolymer of acrylic or methacrylic acid, a salt or ester thereof; a homopolymer or copolymer or acrylamide or acrylonitrile, cellulose ether,
5 carboxylated cellulose derivative, polyalkylene oxide or polyurethane. The polymer is cross-linked to a relatively low degree and but for the cross-linking would be essentially water-soluble.

10 The polymer may include in its structure a polysaccharide such as starch, for example in a graft copolymer.

15 Particularly preferred polymers of interest as disclosed in WO046319.

The polymer selected may be chosen for a number of reasons:

- 20 i) to retain and release textile treatment fluid;
ii) to reabsorb released textile treatment fluid;
iii) to provide adhesion to the textile article, by surface tackiness;
iv) providing a structural aspect to the
25 patch.

Usually, the polymer has a number of free carboxylic acid groups neutralisable with, for example, an alkali metal ion.

30 Preferably the polymer is attached to a backing which can be water-soluble or water-insoluble. The

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backing may be any suitable material formed into a solid, woven or non-woven piece. The function of the backing is to provide structural support to the polymer, allow easy application and removal to the textile article and also
5 to direct application of the fluid into the textile article. In use the pressure is applied to the polymer through the backing to release the treatment agent. Preferably the backing is water impervious to prevent the treatment agent coming into contact with the user and to
10 ensure a generally unidirectional flow of textile treatment fluid from the polymer into the textile.

Ideally the article is wrapped in a liquid impervious wrapping. The wrapping is ideally comprised of
15 one or more peelable or tearable polymer sheets.

The patch may be a one off disposable item or reusable, especially when the polymer reabsorbs the treatment agent when used, or by recharging the polymer
20 with treatment agent.

The patch may be applied to the textile as a liquid which solidifies after application.

25 The invention is further illustrated by the following non-limiting drawing:

Figure 1 shows a patch with a water impervious backing (1) made of a polymer sheet to which is

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attached a hydrogel (2) containing a surfactant treatment fluid.

Figure 2 shows a patch with a water impervious
5 backing (1) made of polymer sheet to which is attached two different hydrogels (2) alternatively along the backing sheet. The first hydrogel contains a treatment fluid containing bleach and the second contains a treatment fluid containing an
10 enzyme.

Ideally the textile treatment agent is dissolved into a fluid. The nature of the fluid is to some extent determined by the treatment undertaken and the properties 15 of the treatment agent. Generally speaking the fluid will be water optionally with an organic solvent such as an alcohol, hydrocarbon or halohydrocarbon; and a surfactant such as anionic, cationic, non-ionic and/or amphoteric surfactant. An organic solvent is preferably included in 20 the compositions of the invention in an amount of from 5 to 50% by weight. The fluid may be in the form of single or multiphase liquid. For the former a co-solvent becomes necessary where the remaining components are immiscible. For the latter, the separate phases may be emulsified 25 optionally with the aid of an emulsifying agent which may be the same as or different from any surfactant present for its detergent function.

The patch may be any suitable size but for convenience is less than 10cm in length or width. The patch may be dispensed from a roll or strip in which 5 multiple patches are mutually attached via a tear line, ideally found in the external wrapping.

Claims

1. A patch comprising:

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a polymer retaining a textile treatment agent;
optionally, a liquid impervious backing attached to
the polymer; and,
optionally, a liquid impervious external wrapping
10 encasing substantially all of the patch, preferably
encasing the entire patch.

2. A patch as claimed in claim 1 wherein the textile
treatment agent is a cleansing fluid, an

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insectidical fluid, a perfumed fluid, an antibiotic
fluid, an antistatic fluid or a mixture of any
thereof.

3. A patch as claimed in claim 1 or claim 2 wherein the
20 polymer is a hydrogel.

4. A method for the treatment of a textile which method
comprises the step of applying to the textile a
patch, as defined in any preceding claim.

25

5. A method for the treatment of a textile as claimed
in claim 4 which comprises the additional step of
applying force to the patch to deform the polymer
and release the fabric treatment agent.

30

6. A method for the treatment of a textile as claimed
in claim 4 which comprises the additional step of

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removing the force from the patch to allow the polymer to absorb the treatment agent and/or the soil into the polymer.

5 7. A method for the treatment of a textile as claimed in any claim from 4 to 6 which comprises the additional step of immersing the textile item into a wash liquid into which the treatment agent and/or the patch will dissolve or disperse.

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8. A method for the treatment of a textile as claimed in any claim from 4 to 6 which comprises the additional step of removing the patch from the textile article.

15

9. A method as claimed in claim 5 in which the force is applied to the composition through the fingers of the user.

20 10. A method is claimed in any claim from 4 to 9 wherein the patch is applied to the textile as a liquid and then solidifies.

Fig.1.

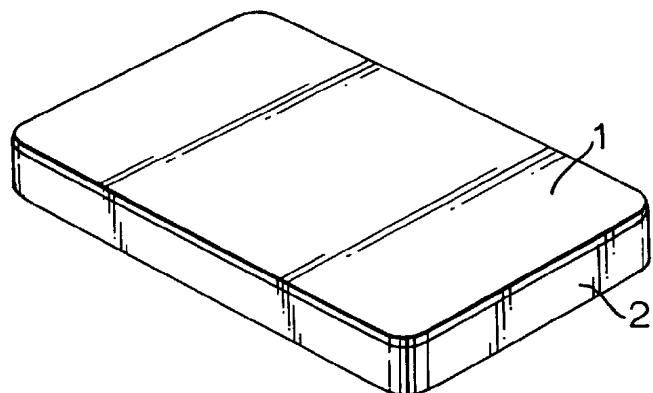
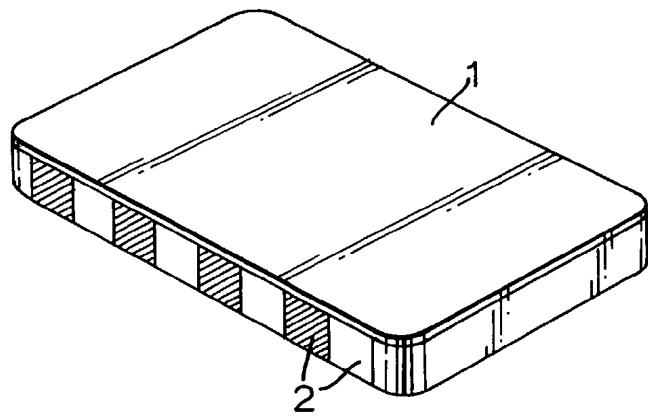


Fig.2.



INTERNATIONAL SEARCH REPORT

In International Application No
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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C11D17/04 C11D11/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C11D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|----------|--|-----------------------|
| X | US 6 228 389 B1 (MCCUE KAREN ANN ET AL) 8 May 2001 (2001-05-08) column 2, line 5 -column 3, line 28 examples --- | 1-3 |
| X | US 4 189 395 A (BLAND FREDERICK H) 19 February 1980 (1980-02-19) claims 1-11; examples --- | 1-3 |
| X | WO 97 32004 A (PROCTER & GAMBLE) 4 September 1997 (1997-09-04) page 3, line 31 -page 4, line 29 page 8, line 4 -page 9, line 32 claims 1-13,18-21; figure 1; example IV --- | 1-6,8,10 -/- |

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | EP 0 257 966 A (RECKITT & COLMANN PROD LTD) 2 March 1988 (1988-03-02) claims 1-3,7,8; examples page 2, line 35 - line 59 --- | 1-6,8-10 |
| A | EP 0 056 529 A (JOEL & ARONOFF UK LTD) 28 July 1982 (1982-07-28) claims --- | 4 |
| A | WO 00 26329 A (PROCTER&GAMBLE) 11 May 2000 (2000-05-11) page 13, line 14-16 page 14, line 9-20 claims 5-9; examples --- | 1-10 |
| P,X | WO 02 11604 A (PROCTER&GAMBLE) 14 February 2002 (2002-02-14) page 6, line 10-25; claims examples 1-6 --- | 1-6,8,9 |
| P,X | EP 1 129 700 A (L'OREAL) 5 September 2001 (2001-09-05) claims 1-26; figures 1-10,14-16 ----- | 1-3 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 02/02613

| Patent document cited in search report | | Publication date | | Patent family member(s) | | Publication date |
|--|----|------------------|--|--|--|--|
| US 6228389 | B1 | 08-05-2001 | AU AU CA EP GB | 747015 B2 5940098 A 2233371 A1 0869216 A1 2323784 A ,B | | 09-05-2002 08-10-1998 02-10-1998 07-10-1998 07-10-1998 |
| US 4189395 | A | 19-02-1980 | AU AU BR DE ES FR GB JP NZ ZA | 522363 B2 4347479 A 7900320 A 2902130 A1 476906 A1 2414900 A1 2012802 A ,B 54110657 A 189425 A 7900204 A | | 03-06-1982 26-07-1979 14-08-1979 26-07-1979 16-09-1979 17-08-1979 01-08-1979 30-08-1979 12-09-1980 26-03-1980 |
| WO 9732004 | A | 04-09-1997 | BR DE DE EP JP JP WO US | 9707779 A 69709707 D1 69709707 T2 0885291 A1 3105263 B2 11505569 T 9732004 A1 5840675 A | | 27-07-1999 21-02-2002 08-08-2002 23-12-1998 30-10-2000 21-05-1999 04-09-1997 24-11-1998 |
| EP 0257966 | A | 02-03-1988 | AU BR DK EP FI GB JP NO PT US ZA ZW | 7735787 A 8704393 A 447487 A 0257966 A2 873738 A 2194972 A 63066383 A 873619 A 85613 A 4802997 A 8706346 A 15987 A1 | | 03-03-1988 19-04-1988 29-02-1988 02-03-1988 29-02-1988 23-03-1988 25-03-1988 29-02-1988 01-09-1987 07-02-1989 27-04-1988 18-11-1987 |
| EP 0056529 | A | 28-07-1982 | EP GB | 0056529 A2 2090193 A ,B | | 28-07-1982 07-07-1982 |
| WO 0026329 | A | 11-05-2000 | AU WO | 1519700 A 0026329 A1 | | 22-05-2000 11-05-2000 |
| WO 0211604 | A | 14-02-2002 | WO AU AU WO US | 0211603 A1 1358701 A 6759100 A 0211604 A1 2002077266 A1 | | 14-02-2002 18-02-2002 18-02-2002 14-02-2002 20-06-2002 |
| EP 1129700 | A | 05-09-2001 | FR BR CN EP JP US | 2804870 A1 0100564 A 1309940 A 1129700 A2 2001277403 A 2001028894 A1 | | 17-08-2001 04-12-2001 29-08-2001 05-09-2001 09-10-2001 11-10-2001 |